



MAT-8486US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No: 10/722,722
Applicant: Mohd Nazri Bin Husain, et al.
Filed: November 26, 2003
Title: DETERGENT, CLEANING METHOD AND CLEANING APPARATUS
TC/A.U.: 1746
Examiner: To Be Assigned

CLAIM TO RIGHT OF PRIORITY

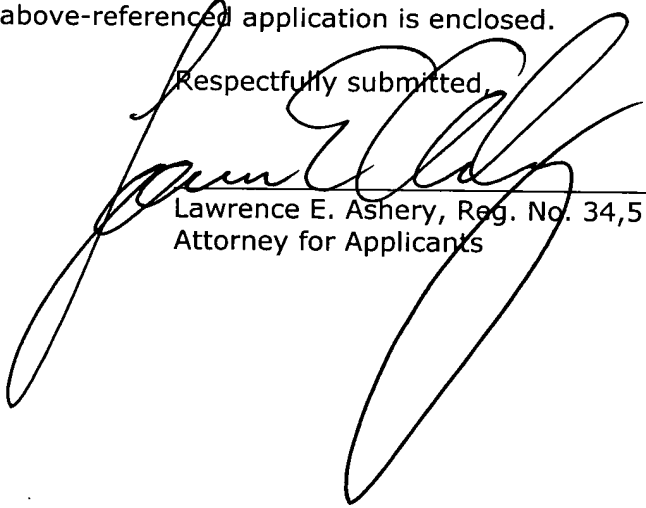
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 35 U.S.C. § 119, Applicants hereby claim the benefit of prior Malaysian Patent Application No. PI 2002 4501, filed November 30, 2002.

A certified copy of the above-referenced application is enclosed.

Respectfully submitted,


Lawrence E. Ashery, Reg. No. 34,515
Attorney for Applicants

LEA/dmw

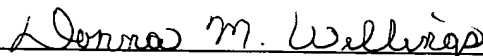
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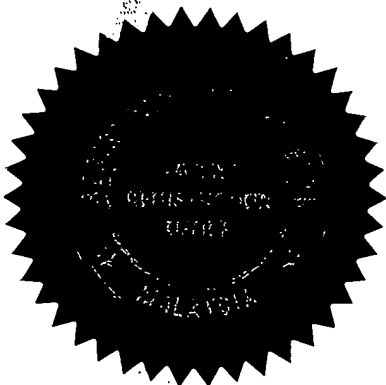
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PATENT APPLICATION NO: PI 2002 4501

This is to certify that annexed hereto is a true copy from the records of the Registry of Trade Marks and Patents, Malaysia of the application as originally filed which is identified therein.



By authority of the
REGISTRAR OF PATENTS


ABDUL RAHMAN RAMLI
(CERTIFYING OFFICER)
21 November 2003

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Ministry of Domestic Trade and Consumer Affairs Malaysia
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CERTIFICATE OF FILING

APPLICANT : i) MATSUSHITA ELECTRIC INDUSTRIAL CO.,
LTD.
ii) MATSUSHITA ELECTRONIC DEVICES (M)
SDN. BHD.
APPLICATION NO : PI 20024501
REQUEST RECEIVED ON : 30/11/2002
FILING DATE : 30/11/2002
AGENT'S/APPLICANT'S FILE REF. : EPD/2002-09/32

Please find attached, a copy of the Request Form relating to the above application, with the filing date and application number marked thereon in accordance with Regulation 25(1).

Date : 24/12/2002


(ROZILEE BIN ASID)
for Registrar of Patents

To : A. RAHMAN B. ZUHRI
SIRIM BERHAD 1,
PERSIARAN DATO' MENTERI,
SECTION 2
40000-SHAH ALAM
MALAYSIA

Patents Form No. 1
PATENTS ACT 1983

REQUEST FOR GRANT OF PATENT
[Regulations 7(1)]

To : The Registrar of Patents
Patent Registration Office
Kuala Lumpur,
Malaysia

For Official Use

APPLICATION NO. : PA 2002 4501

Filing Date : 30-11-2002

Request received on : 30-11-2002

*Fee received on: 30-11-2002

Amount : RM 1,320

*Cheque/Postal Order/Money Order/Draft/Cash No. :
BUS 131733

Date of mailing :

Please submit this Form in duplicate
Together with the prescribed fee.

Applicant's or Agent's file reference :

EPD/2002-09/32

THE APPLICANT(S) REQUEST(S) THE GRANT OF A PATENT IN RESPECT OF THE
FOLLOWING PARTICULARS

I. TITLE OF INVENTION : AN ARTICLE CLEANING SYSTEM

II. APPLICANT(s) the data concerning each applicant must appear in this box or, if the space is insufficient, in the space below)

Name : (1) MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
(2) MATSUSHITA ELECTRONIC DEVICES (M) SDN. BHD.

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Address for service in Malaysia : SIRIM BERHAD, NO. 1, PERSIARAN DATO' MENTERI
SECTION 2, 40000 SHAH ALAM, SELANGOR

Nationality : (1) A Company enacted by the Act of Parliament
(2) A Company enacted by the Act of Parliament

* Permanent residence or principal place of business :

- as above -

Telephone No. (if any) 03-55446131

Fax No (if any) 03-55446146

20024501

30 NOV 2002

Additional Information (if any) :

III. INVENTOR

Applicant is the inventor

Yes

☐

No

☒

If the applicant is not the inventor :

Name of inventor : (1) MOHD. NAZRI HUSAIN

(2) AFFENDI MOHAMED ZAIN

Address of inventor : ALL C/O MATSUSHITA ELECTRONIC DEVICES (M) SDN. BHD.

NO. 1, JALAN PELAGA 16/13, 40724 SHAH ALAM

SELANGOR DARUL EHSAN

MALAYSIA

A statement justifying the applicant's right to the patent accompanies this Form :

Yes

☒

No

☐

Additional Information (if any)

IV. AGENT OR REPRESENTATIVE

Applicant has appointed a patent agent in accompanying Form No. 17

Yes

☒

No

☐

Agent's Registration No. : PA/99/0082

Applicants have appointed A. RAHMAN ZUHRI
To be their common representative

V. DIVISIONAL APPLICATION

This application is a divisional application

☐

The benefit of the
filing date

priority date

☐

of the initial application is claimed in as much as the subject-matter of the present application is contained in the initial application identified below :

Initial Application No. :

Date of filing of initial application :

VI. DISCLOSURE TO BE DISREGARDED FOR PRIOR ART PURPOSES

Additional information is contained in supplemental box : _____

(a) Disclosure was due to acts of applicant or his predecessor in title

☐

Date of disclosure: _____

(b) Disclosure was due to abuse of rights of applicant or his predecessor in title

☐

Date of disclosure: _____

A statement specifying in more detail the facts concerning the disclosure accompanies this Form

Yes

☐

No

☐

Additional Information (If any)

VII. PRIORITY CLAIM (if any)

The priority of an earlier application is claimed as follows :

Country (if the earlier application is a regional or international application, indicate the office with Which it is filed) :

Filing Date : _____

Application No. : _____

Symbol of the International Patent Classification :

If not yet allocated, please tick

☒

The priority of more than one earlier application is claimed:

Yes

☐

No

☐

The certified copy of the earlier application(s) accompanies this Form:

Yes

☐

No

☐

If No, it will be furnished by

Additional Information (if any) : -

20024501

30 NOV 2002

VIII. CHECK LIST

A. This application contains the following :

1. request	
2. description	06 Sheets
3. claim	06 Sheets
4. abstract	01 Sheets
5. drawings	03 Sheets
Total	16 Sheets

B. This Form, as filed, is accompanied by the items checked below (please tick where appropriate):

(a) signed Form No. 17

☒

(b) declaration that inventor does not wish to be named in the patent assignment

☐

(c) statement justifying applicant's right to the patent

☒

(e) priority document (certified copy of earlier application)

☐

(f) cash, cheque, money order, banker's draft or postal order for the payment of application fee – BUMUPUTRA-COMMERCE CHEQUE NO. 131733 FOR RM 1320.00

☒

(g) other documents (specify) – Form 5

☒

IX. SIGNATURE


A. RAHMAN ZUHRI
**(Applicant/Agent)

26/11/2002
(Date)

If Agent, indicate Agent's Registration No. : PA/99/0082

For Official Use

1. Date application received :

2. Date of receipt of correction, later filed papers or drawings completing the application :

* Delete whichever does not apply

** Type name under signature and delete whichever does not apply

PNMB., K.L.

An Article Cleaning System

1. Technical Field of the Invention

The present invention relates to an article cleaning composition, specifically to a cleaning composition made from a fruit and a method of cleaning thereof.

2. Background of the Invention

A known method of cleaning an article is by manually cleaning the article using either a piece of cloth, sandpaper, sand, diamond needle or water and detergent. This is a rather tedious and painstaking procedure especially if the article comprises of an awkward configuration and being small in size. The article could include souvenirs, machine parts and pieces, devices and the like which may be made from or coated with ceramic, copper, brass, stainless steel, and aluminium. Therefore the procedure need to be done cautiously to cut down on article rejection. The article is thereby expected to be cleared of stain, oil stain, rust, dirt, contaminant and such like. As for workers engaged in such cleaning procedure, they would need to wear special mask for safe breathing and they would be required to physically inspect the cleaned article as well. The by-product of such cleaning procedure would be equally health hazard to the workers and the environment alike.

Cleaning on a mass scale would require skilled workers working at a faster rate in order to fulfill demands of such cleaned article. Therefore there is the need to devise a new method of cleaning articles. This is especially critical if the article to be cleaned is intended to be used as a holder for electronic devices such as pallets whereby rejection of such devices depends on the how clean the pallets are.

3. Summary of the Invention

The present invention relates to a method of cleaning article using a natural base cleaning solution wherein the by-product of such cleaning

method is health and environment friendly.

Another object of the invention relates to an article being able to be cleaned at a faster rate and in bulk resulting in engaging lesser amount of workers.

These and other objects of the present invention are accomplished by providing

A cleaning system for cleaning an article comprising
a cleaning composition;

a cleaning method;

characterized in that the cleaning composition comprises of a natural fruit base.

Preferably, the natural fruit base is Garcinia Atroviridis.

Further preferably, the cleaning composition is in aqueous form.

Yet further preferably the pH of the cleaning composition is between 1 to

5.

Further providing

A cleaning system for cleaning an article comprising
a cleaning composition;

a cleaning method;

characterized in that the cleaning method comprises an immersion process; a rinsing process; and a drying process.

Preferably the immersion process comprises the cleaning composition heated to between room temperature to 80°C; and immersing the article for between 1 minute to 180 minutes.

Further preferably an ultrasonic effect is provided to the cleaning composition.

Yet further preferably the frequency of the ultrasonic effect be between 0 to 100 kHz.

Further preferably the cleaning composition is neutralized and drained out of the system.

Further preferably the cleaning composition is filtered and re-used in the immersion step.

Preferably the rinsing process comprises the cleaned article being rinsed in substantially pure water for between 1 minute to 30 minutes.

Further preferably the rinsing water is neutralized and drained out from the system.

Preferably the drying process comprises of drying the article at substantially room temperature to 80°C for substantially 1 minute to 30 minutes.

Further providing

A cleaning system for cleaning pallets comprising

a cleaning composition;

a cleaning method;

characterized in that the cleaning composition comprises of a natural fruit base.

Preferably, the natural fruit base is Garcinia Atroviridis.

Further preferably, the cleaning composition is in aqueous form.

Yet further preferably the pH of the cleaning composition is between 2 to

3.

Further providing

A cleaning system for cleaning pallets comprising

a cleaning composition;

a cleaning method;

characterized in that the cleaning method comprises an immersion process; a rinsing process; and a drying process.

Preferably the immersion process comprises the cleaning composition heated to between room temperature to 60°C; and immersing the pallets for between 20 minutes to 30 minutes.

Further preferably an ultrasonic effect is provided to the cleaning composition.

Yet further preferably the frequency of the ultrasonic effect be substantially 0 kHz and substantially between 10 to 50 kHz.

Further preferably the cleaning composition is neutralized and drained out of the system.

Further preferably the cleaning composition is filtered and re-used in the immersion process.

Preferably the rinsing process comprises the cleaned pallets being rinsed in substantially pure water for substantially 3 minutes.

Further preferably the rinsing water is neutralized and drained out from the system.

Preferably the drying process comprises of drying the pallets at substantially 60°C for substantially 2 minutes to 5 minutes.

Additional objects and advantages of the invention will become more apparent when referred to the accompanying drawings.

5 4. **Brief Description of the Drawings**

Fig. 1 is a schematic diagram of the method of preparing the cleaning composition according to the preferred embodiment of the present invention;

10 Fig. 2 is a schematic diagram of the cleaning method of an article according to the preferred embodiment of the present invention;

Fig. 3 is a representation of an apparatus for cleaning articles such as pallets according to the preferred embodiment of the present invention.

5. **Detailed Description of the Preferred Embodiment**

15 For a better understanding of the invention, Fig. 1 describes the preparation of the cleaning composition (10) or solution by initially cleaning the raw fruit, either dried or fresh, Garcinia Atroviridis and placed into a water bath (12) which has been previously filled with pure water and heated to 65°C. Preferably the ratio of the pure water to the fruit is 22 litres to 10 grams. The fruit is let to boil for 20 minutes and upon arriving at the desired pH of preferably 2 to 3, the bath (12) is switched off and the resultant solution is filtered (14) and transferred to a container (16) for storage. If during boiling, the pH of the solution is found to be less than 2, more pure water is added in; if the pH is found to be more than 3, more fruit is added in. Preferably the temperature of the solution need to drop to 50°C before the filtration could be initiated.

20 As seen from Fig. 2, the method or process or system (20) of cleaning an article (100) or an item starts by immersing the article (100) in the cleaning solution (10) in at least one cleaning bath (22). The temperature of the solution (10) could be set at between room temperature to 80°C and the immersion time could vary from few minutes such as 1 minute to few hours such as 180 minutes. For optimum output, preferably an ultrasonic effect (25), preferably between 0 kHz to 100 kHz, is introduced to the cleaning solution (10) to assist in the cleaning process (20) hence able to increase rate of cleaning and the article is able to be cleaned at a shorter time. This

30

5 ultrasonic effect (25) would increase the temperature of the solution (10) and depending on the intended cleaning level, the temperature of the solution (10) is maintained so as to produce a better quality of cleaned article (100) be it for aesthetic reason or practical reason.

10 For the cleaning of articles (100), the desired pH of the solution (10) could be between 1 to 5 and for the pallets (64) preferably between 2 to 3. For the pallets (62), the duration of immersion could preferably be between 20 to 30 minutes; the preferable temperature be between room temperature to 60°C; and the preferable frequency of the ultrasonic effect be between 10kHz to 50kHz.

15 The cleaned article (100) is then lifted out of the cleaning bath (22) and transferred to a rinsing bath (24) to rinsed off any cleaning solution (10) and further rinsed with pure water, with the whole rinsing step takes between 1 minute to 30 minutes and then put to dry. As for the pallets (62), the rinsing takes preferably 3 minutes. The article (100) is or pallets (64) are then transferred into a drier (26) such as a blower to dries off excess solution and further transferred to an oven (28) for complete dryness, the temperature of this drying process is kept at preferably room temperature to 80°C for preferably between 1 minute to 30 minutes. For the pallets (62), the temperature of the oven (28) is maintained at preferably 60°C and the duration for this process is preferably 2 to 5 minutes.

25 As for the by-product of the immersion process, the used cleaning solution (19) from the rinsing bath (24) is neutralized to pH 7 in the waste treatment system (30) and drained off from the system into a channel (35) such as drains, streams, rivers and the like. Alternatively, the used cleaning solution (19) is filtered using a water filter (40) or the like and then pumped back into the cleaning bath (22) using a water pump (50) or the like, to be re-used again and further used for the next batch of articles or pallets.

30 Having re-cycled for a few number of times and found the optimum pH unable to be maintained or/and solution being unable to be filtered anymore, the solution (19) is then drained out of the system into a waste treatment system (30) to neutralize it and further into a channel (35) such as drains, streams, rivers and the like. As for the byproduct from the rinsing bath (24), the solution would be drained out into the waste treatment system (30), have it neutralized and drains it further into the environment.

32 An example of a cleaning system (60) being used for cleaning pallets

5 (62) is shown in Fig. 3, where at least one jig (61) and at least one pallet (62) are cleaned by immersing in at least one cleaning bath (63), further rinsed in the rinsing bath (64) and yet further rinsed using a blower (65) and further dried in an oven (66). The waste water is collected in the waste treatment system (70) where it is further filtered (80), not shown, and pumped (90), not
10 shown, back into the cleaning bath (63). The cleaning solution (10) having recycled until no longer able to retain the required pH, the used solution (19) is let to pass through the waste treatment system (70) where it would be neutralized and channeled out from the system (60) into drains and the like. For a rapid and excellent performance in cleaning the pallets (62), an
15 ultrasonic effect (67) is applied to the cleaning bath (63) during the immersion process.

The cleaning system can be used for cleaning articles made or coated with ceramic, copper, brass, stainless steel, steel, aluminium and such like.

20 It should be understood that various changes, adaptations and modification may be made thereto without departing from the spirit of the invention and the scope of the claims. It should be understood, therefore, that the invention is not limited to details of the illustrated invention shown in the figures and that it may include variations as will be apparent to one skilled in the art.
25

What is claimed is

1. A cleaning system (2) for cleaning an article (100) comprising
 5 a cleaning composition (10)
 a cleaning method (20);
 characterized in that
 the cleaning composition (10) is made from a natural fruit base.
2. A cleaning system (2) as claimed in claim 1 in that the natural fruit base is Garcinia Atroviridis.
- 10 3. A cleaning system (2) as claimed in claim 1 in that the cleaning composition (10) is in aqueous form.
4. A cleaning system (2) as claimed in claim 3 in that the pH of the cleaning composition (10) is substantially between 1 to 5.
- 15 5. A cleaning system (2) for cleaning an article (100) comprising
 a cleaning composition (10);
 a cleaning method (20);
 characterized in that
 the cleaning method (20) comprises of an immersion process; a rinsing process; and a drying process.
- 20 6. A cleaning system (2) as claimed in claim 5 in that the immersion process further comprises the cleaning composition (10) heated to between room temperature to 80°C; and immersing the article (100) for between 1 minute to 180 minutes.
- 25 7. A cleaning system (2) as claimed in claim 6 in that an ultrasonic effect (25) is provided to the cleaning composition (10).
8. A cleaning system (2) as claimed in claim 7 in that the frequency of the ultrasonic effect (25) be between 0 kHz to 100 kHz.

9. A cleaning system (2) as claimed in claim 6 in that the cleaning composition (10) is further neutralized and drained out of the system.
10. A cleaning system (2) as claimed in claim 6 in that the cleaning composition is further filtered (40) and re-used in the immersion process.
- 5 11. A cleaning system (2) as claimed in claim 5 in that the rinsing process further comprise of rinsing the article (100) in substantially pure water for between 1 minute to 30 minutes.
- 10 12. A cleaning system (2) as claimed in claim 11 in the cleaning composition (10) and the substantially pure water is further neutralized and drained out from the system.
13. A cleaning system (2) as claimed in claim 5 in that the drying process comprises of drying the article (100) at substantially room temperature to 80°C for substantially 1 minute to 30 minutes.
- 15 14. A cleaning system(2) for cleaning pallets (62) comprising
a cleaning composition (10);
a cleaning method (60);
characterized in that
the cleaning composition (10) comprises of a natural fruit base.
- 20 15. A cleaning system (2) as claimed in claim 14 in that the natural fruit base is Garcinia Atriviridis.
16. A cleaning system (2) as claimed in claim 14 in that the cleaning composition (10) is in aqueous form.
17. A cleaning system (2) as claimed in claim 16 in that the pH of the cleaning composition (10) is substantially between 2 to 3.
- 25 18. A cleaning system (6) for cleaning pallets (62) comprising
a cleaning composition (10);
a cleaning method (60);

characterized in that
the cleaning method (60) comprises of an immersion process; a rinsing
process; a drying process.

- 5 19. A cleaning system (6) as claimed in claim 18 in that the immersion
process further comprises the cleaning composition (10) heated to between
room temperature to 60°C; and immersing the pallets (62) for substantially
between 20 minutes to 30 minutes.
20. A cleaning system (6) as claimed in claim 19 in that an ultrasonic effect
(67) is provided to the cleaning composition.
- 10 21. A cleaning system (6) as claimed in claim 20 in that the frequency of the
ultrasonic effect (67) be 0 kHz and substantially between 10 kHz to 50 kHz.
22. A cleaning system (6) as claimed in claim 19 in that the cleaning
composition (10) is neutralized and drained out of the system.
- 15 23. A cleaning system (6) as claimed in claim 19 in that the cleaning
composition (10) is filtered and re-used in the immersion process.
24. A cleaning system (6) as claimed in claim 18 in that the rinsing process
further comprises of rinsing the pallets (62) in substantially pure water for
substantially 3 minutes.
- 20 25. A cleaning system (6) as claimed in claim 19 in the cleaning composition
(10) and the substantially pure water is further neutralized and drained out
from the system.
26. A cleaning system (6) as claimed in claim 18 in that the drying process
further comprises of drying the pallets (62) at substantially 60°C for
substantially 2 minutes to 5 minutes.
- 25 27. A cleaning system (2) as claimed in claim 1 for cleaning article (100)
made from ceramic, copper, brass, stainless steel, steel, aluminium and such
like.

28. A cleaning system (2) as claimed in claim 1 for cleaning article (100) coated with ceramic, copper, brass, stainless steel, steel, aluminium and such like.

5 29. A cleaning method (2) for cleaning an item (100) using a cleaning composition (10) comprising a natural fruit base.

30. The cleaning method (2) as claimed in claim 29 in that the natural fruit base is Garcinia Atroviridis.

31. The cleaning method (2) as claimed in claim 29 in that the cleaning composition (10) is in aqueous form.

10 32. The cleaning method (2) for cleaning the item (100) as claimed in claim 31 in that the pH of the cleaning composition (10) is substantially between 1 to 5.

33. The cleaning method (6) for cleaning a pallet (62) in claim 31 in that the pH of the cleaning composition (10) is substantially between 2 to 3.

15 34. The cleaning method (2) as claimed in claim 29 comprising:
an immersion process;
a rinsing process; and
a drying process.

20 35. The cleaning method (2) for cleaning the item (100) as claimed in claim 34, wherein the immersion process comprising heating the cleaning composition (10) between room temperature to 80 °C; and immersing the item (100) for between 1 minute to 180 minutes.

25 36. The cleaning method (2) for cleaning the pallet (62) as claimed in claim 35, wherein the immersion process comprising heating the cleaning composition (10) between room temperature to 60 °C; and immersing the pallet (62) for between 20 minute to 30 minutes.

37. The cleaning method (2) as claimed in claim 34 wherein an ultrasonic effect (25) is provided to the cleaning composition (10) while the immersion process.

5 38. The cleaning method (2) for cleaning the item (100) as claimed in claim 37 wherein frequency of the ultrasonic effect (25) is between 10 kHz to 100 kHz.

39. The cleaning method (2) for cleaning the pallet (62) as claimed in claim 37 wherein frequency of the ultrasonic effect (25) is between 10 kHz to 50 kHz.

10 40. The cleaning method (2) as claimed in claim 35 wherein the immersion process further comprising neutralizing the cleaning composition (10), and draining out the cleaning composition (10).

41. The cleaning method (2) as claimed in claim 35 wherein the immersion process further comprising filtering used composition (19), and re-using the filtered composition in the immersion process.

15 42. The cleaning method (2) as claimed in claim 34 wherein the rinsing process is rinsing the item (100) in substantially pure water for between 1 minute to 30 minutes.

20 43. The cleaning method (2) for cleaning the pallet (62) as claimed in claim 42 wherein the rinsing process is rinsing the pallet (62) in substantially pure water for substantially 3 minutes.

44. The cleaning method (2) as claimed in claim 42 further comprising neutralizing the substantially pure water; and draining out from the system.

25 45. The cleaning method (2) as claimed in claim 33 wherein the drying process dries the item (100) at substantially room temperature to 80 °C for 1 minute to 30 minutes.

46. The cleaning method (2) for cleaning the pallet (62) as claimed in claim 45 wherein the drying process dries the item (100) at substantially room

temperature to 60 °C for 2 minute to 5 minutes.

47. The cleaning method (2) as claimed in claim 29 for cleaning item (100) made from ceramic, copper, brass, stainless steel, steel, aluminium and such like.

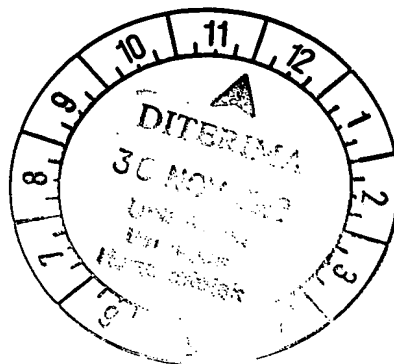
5 48. The cleaning method (2) as claimed in claim 29 for cleaning pallet (62) made of plastics.

49. A cleaning composition (10) comprising a natural fruit base.

50. The cleaning composition (10) as claimed in claim 49 in that the natural fruit base is Garcinia Atroviridis.

10 51. The cleaning composition (10) as claimed in claim 49 wherein the cleaning composition (10) is in aqueous form.

52. The cleaning method (2) for cleaning the item (100) as claimed in claim 49 in that the pH of the cleaning composition (10) is substantially between 1 to 5.



Abstract**An Article Cleaning System**

5. There is disclosed an article (100) cleaning system (2) using natural fruit base, preferably a Garcinia fruit, as a cleaning solution (10) it is being used in an aqueous form. The article (100) is immersed into the solution (10), rinsed and dried accordingly. The by-product of the cleaning system is environment friendly.

(The most illustrative figure is Fig. 2)

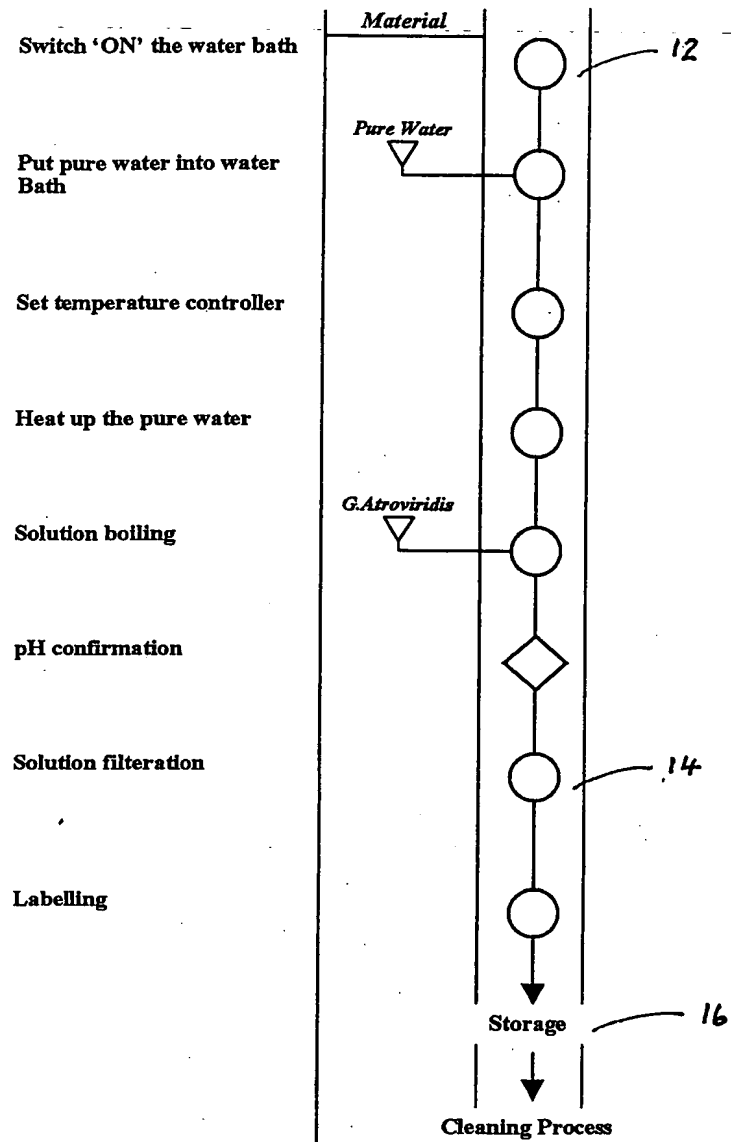


FIG. 1

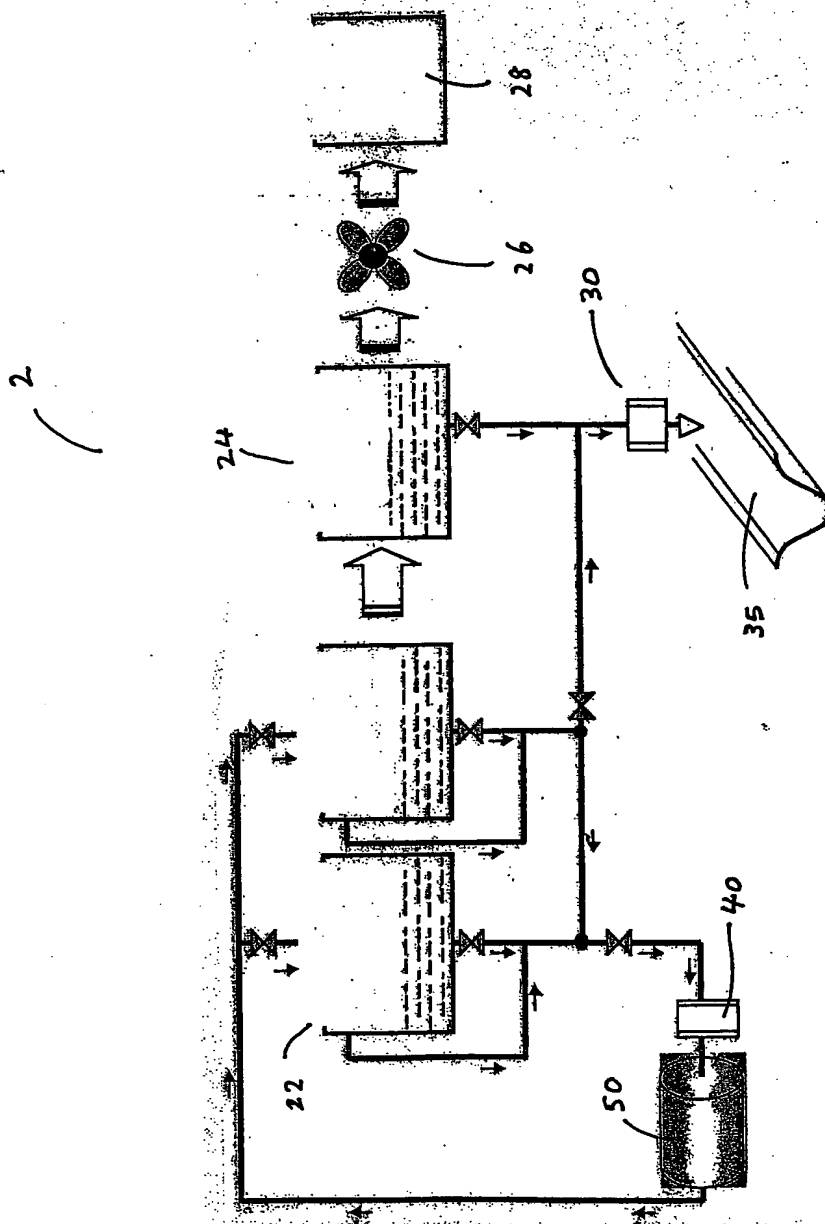


FIG. 2

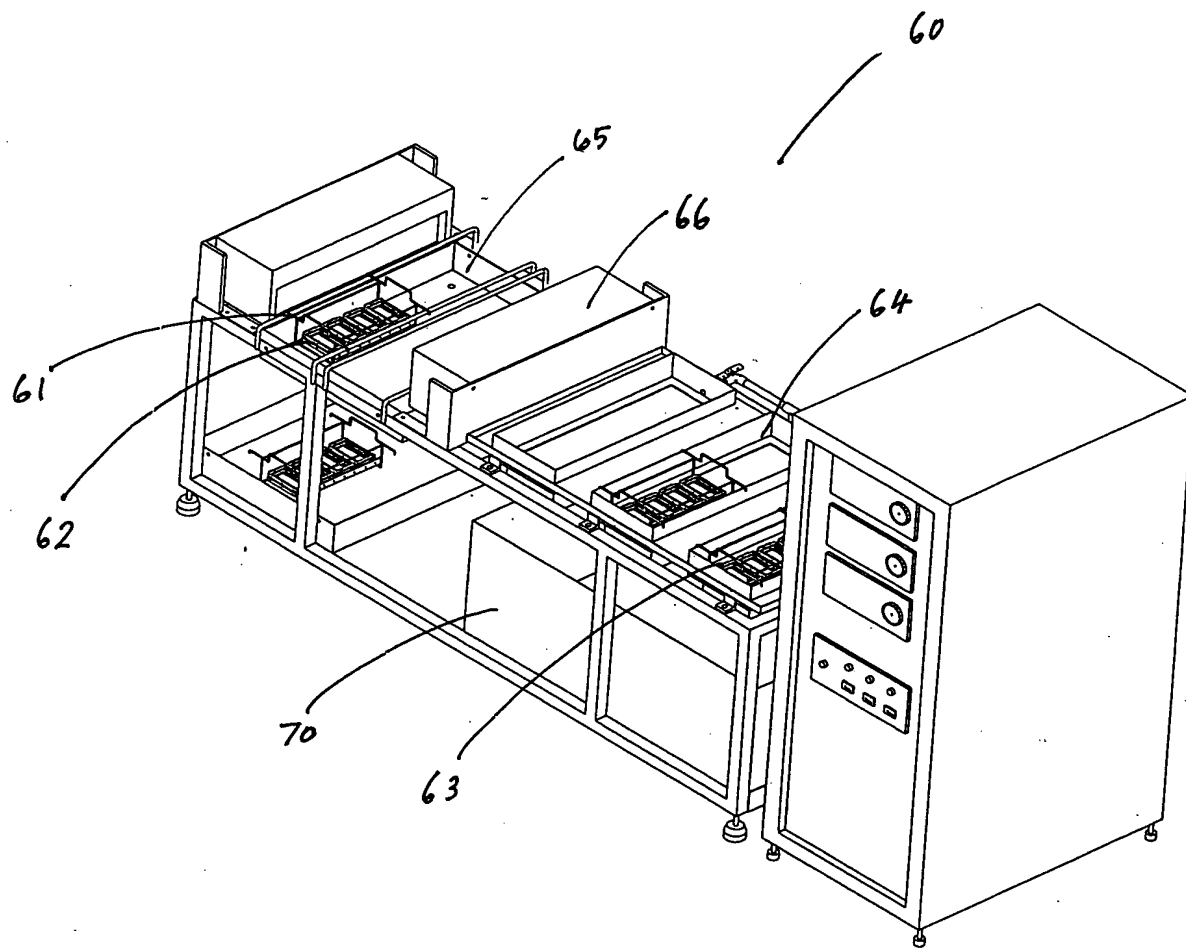


FIG. 3